

# *Apple IIGS (with 1 megabyte of RAM)*



## *Overview*

The Apple IIGS® personal computer is the most powerful and most colorful Apple® II ever made.

Combining the best of the previous Apple II computers—built-in accessory ports for easy addition of peripherals, and versatile expansion slots for system customization—the Apple IIGS provides an easy-to-use interface similar to that of the Macintosh® personal computer.

It also offers powerful features such as high-resolution color graphics, 15-voice sound capability, and the advanced 65C816 microprocessor.

The Apple IIGS features GS/OS™, an operating system developed exclusively to take advantage of the computer's hardware features. GS/OS

offers high-performance capabilities such as rapid disk access and program launching, while increasing the system's ease of use.

Powerful hardware capabilities and advanced system software that puts them at your fingertips: It all adds up to the ultimate Apple II personal computer.



## Features

## Benefits

- ▶ Powerful 16-bit 65C816 processor

- ▶ Runs software that takes advantage of the advanced graphics and sound capabilities of the Apple IIGS system.

- ▶ Compatible with the 65C02 microprocessor used in the earlier Apple II systems

- ▶ Runs virtually all existing Apple II software—thousands of programs, including the educational software used by many schools.
- ▶ Protects your investment by letting you upgrade or trade up without sacrificing software or hardware compatibility.

- ▶ 1 megabyte of user memory (RAM)

- ▶ Allows you to work with large documents (spreadsheets, databases, and so forth).

- ▶ Seven general-purpose expansion slots

- ▶ Provides a virtually unlimited growth path.

- ▶ Seven peripherals ports

- ▶ Allows you to connect commonly used peripherals (such as disk drives, a printer, an RGB or composite monitor, a modem, and AppleTalk® network devices) without the need for special interface cards.

- ▶ One dedicated memory expansion slot

- ▶ Lets you easily expand the system memory to as much as 2 megabytes, using the Apple IIGS Memory Expansion Kits.
- ▶ Permits expansion to 8 megabytes through the use of third-party cards.

- ▶ Built-in 32-oscillator sound chip

- ▶ Lets you compose for and simultaneously play back as many as 15 separate instruments, sound effects, or voices.

- ▶ Built-in speaker and standard output jack for external speakers or headphones

- ▶ Permits the sounds of music, games, educational software, and even human voices to be presented with startling realism.

- ▶ Two super-high-resolution graphics modes, offering a palette of 4,096 colors

- ▶ Lets you produce richly detailed graphics using home, school, or business applications.
- ▶ Enables the development of graphically enhanced educational and productivity applications.

- ▶ Slot assignment flexibility

- ▶ Allows you to configure your system in a variety of ways. Refer to your owner's manual for slot assignment details.



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## Product Details

The Apple IIGS personal computer features the Apple IIGS System Software Version 5.0, which includes the following:

### GS/OS operating system

Exclusively created for the Apple IIGS personal computer, GS/OS dramatically increases the speed of both disk access and program launching. It also includes File System Translators (FSTs) that allow applications to directly access files created using other file systems, such as the ISO/High Sierra file system used by CD-ROM devices.

### Finder

The Apple IIGS Finder™ has been revised extensively to take full advantage of the GS/OS operating system. In addition to providing support for disk partitions and other new features, the Apple IIGS Finder is now easier to use, faster, and more informative than the earlier version. The Finder also supports the AppleShare® File Server, allowing you to share program files and data with other AppleShare users.

### Advanced Disk Utility

With its graphics-based interface, the Advanced Disk Utility makes it easy for you to initialize, name, erase, and partition hard disks, as well as to work with both 5.25- and 3.5-inch floppy disks.

### Installer

This program allows you to update your startup disks with the latest system software. It also lets you add special system files to customize startup disks for use with your particular system configuration.

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## Technical Specifications

### Central processing unit (CPU)

- ▶ Microprocessor: 65C816
- ▶ Clock speed: 2.8 or 1.02 megahertz; user- or software-selectable
- ▶ Address bus: 24 bits
- ▶ Data bus: 8 bits
- ▶ Address range: 16,777,216 bytes
- ▶ 16-bit registers: accumulator, two index registers, direct register, stack pointer, and program counter
- ▶ 8-bit registers: data bank, program bank, and status
- ▶ Addressable memory: up to 8 megabytes of RAM (random-access memory) and up to 1 megabyte of ROM (read-only memory)

### Memory

- ▶ 1 megabyte of RAM, expandable to 8 megabytes
- ▶ 256K of ROM, expandable to 1 megabyte

### Text display modes

- ▶ 40 columns by 24 lines
- ▶ 80 columns by 24 lines

### Graphics display modes

- ▶ Super-high-resolution  
—320 dots horizontally by 200 dots vertically, in up to 16 colors per line and 256 colors per screen, from a palette of 4,096 colors

- 640 dots horizontally by 200 dots vertically, in 4 or more colors per line and 128 colors per screen, from a palette of 4,096 colors
- ▶ Double-high-resolution (560 dots horizontally by 192 dots vertically; 16 colors)
- ▶ Double-low-resolution (80 dots horizontally by 48 dots vertically; 6 colors)
- ▶ High-resolution (280 dots horizontally by 192 dots vertically; 6 colors)
- ▶ Low-resolution (40 dots horizontally by 48 dots vertically; 16 colors)

### Sound capability

- ▶ Ensoniq 32-oscillator digital synthesizer chip with dedicated 64K RAM
- Produces up to 15 voices simultaneously
- Uses internal speaker, or external speaker or headphones via audio output jack (volume is set through the Control Panel)

### Character sets

- ▶ 32 letters (uppercase and lowercase), 32 special characters, 32 Mousetext characters, and 12 unique characters for each of these international character sets: U.S., U.K., French, Danish, Spanish, Italian, German, and Swedish

### Keyboard

- ▶ Standard typewriter-style
- ▶ 80 keys, plus 14-key numeric keypad
- ▶ Two Apple Desktop Bus™ connectors (one for attaching the keyboard to the computer; one for daisy-chaining additional input devices)
- ▶ Keyboard layouts (selectable through the Control Panel)  
—QWERTY (Sholes)  
—Dvorak  
—Nine international (all those listed under Character sets, plus French Canadian)

### Interfaces

- ▶ Expansion slots  
—One multipurpose RAM/ROM memory expansion slot  
—Seven general-purpose input/output slots for peripherals control cards, all fully buffered, with interrupt and DMA priority
- ▶ Serial ports: two 8-pin mini-circular connectors (either can be used to connect AppleTalk devices); utilize SCC communications chip
- ▶ Disk drive port: one 19-pin D-style connector (allows daisy-chain connection of up to four Apple 3.5, Apple 5.25, or UniDisk™ disk drives)





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## Technical Specifications (continued)

- ▶ Video output
  - Analog RGB, via 15-pin D-style connector
  - Composite color, via RCA phono connector
- ▶ Apple Desktop Bus port: one 4-pin mini-circular connector on back of computer
- ▶ Game I/O: 9-pin D-style connector for joysticks, graphics tablet, and other such devices
- ▶ Audio
  - RCA mini headphone/speaker output jack with programmable volume control
  - Input/Output connector on main logic board

### Operating systems

- ▶ GS/OS
- ▶ ProDOS® 16 and ProDOS 8
- ▶ Pascal

- ▶ DOS 3.3
- ▶ CP/M (with appropriate coprocessor card)

### Other features

- ▶ Real-time clock (set through the Control Panel)
- ▶ Battery backup for Control Panel settings

### Electrical requirements

- ▶ Line voltage: 107 to 132 volts AC; 50 to 60 hertz
- ▶ Power consumption:
  - Typical: 11 watts
  - Maximum: 60 watts
- ▶ Supply voltages:
  - +5 volts (±3%)
  - +12 volts (±6%)
  - 5 volts (±10%)
  - 12 volts (±10%)
- ▶ Maximum supply currents:
  - +5 volts: 2.5 amps
  - +12 volts: 1.5 amps

- 5 volts: 250 milliamps
- 12 volts: 250 milliamps

### Environmental requirements

- ▶ Operating temperature: 32° to 113° F (0° to 45° C)
- ▶ Maximum temperature on power supply case: 130° F (55° C)
- ▶ Relative humidity: 5% to 85%

### Safety and EMI qualifications

- ▶ FCC Part 15 Class B Computing Devices
- ▶ CSA 22.2, No. 154-1979
- ▶ UL 114—Office Appliances and Business Equipment

### Size and weight (main unit)

- ▶ Height: 4.6 in. (11.7 cm)
- ▶ Width: 11.2 in. (28.4 cm)
- ▶ Depth: 13.7 in. (34.8 cm)
- ▶ Weight: 8.72 lb. (3.96 kg)

## Ordering Information

**Apple IIgs  
(with 1 megabyte of RAM)**  
Order No. A0012LL/A

- With your order, you'll receive:
- ▶ Apple IIgs personal computer with 1 megabyte of RAM and 256K of ROM
  - ▶ Apple Desktop Bus detached keyboard with numeric keypad
  - ▶ Keyboard cable
  - ▶ Apple Desktop Bus mouse
  - ▶ Power cord
  - ▶ Apple IIgs System disk
  - ▶ Apple IIgs System Tools disk

- ▶ Your Tour of the Apple IIgs interactive training disk
- ▶ *Getting Started with Your Apple IIgs* manual
- ▶ *Apple IIgs Owner's Reference* manual
- ▶ *A Touch of Applesoft BASIC* introduction to programming
- ▶ Informational materials on related products and services
- ▶ Limited warranty statement
- ▶ Product registration card

**Apple IIgs System Fan**  
Order No. A2M6004

If your Apple IIgs will contain three or more expansion cards, you should also obtain the Apple IIgs System Fan.